

# Laparoscopic Diagnosis and Treatment in Gynecologic Emergencies

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## ABSTRACT

**Objective:** To present an analysis of our experience with 22 consecutive cases of acute abdominal gynecologic emergencies managed with a laparoscopic approach.

**Methods:** From March 1997 to October 1998, 22 patients with a diagnosis of acute abdominal gynecologic emergencies underwent laparoscopic intervention. A transvaginal ultrasound was performed on all patients preoperatively to supplement the diagnostic workup. Surgical time, complications, and length of hospital stay were evaluated, and the laparoscopic diagnosis was compared with the preoperative diagnosis.

**Results:** The laparoscopic diagnosis was different from the preoperative diagnosis in 31.8% of patients. Of the 22 patients, laparoscopic therapeutic procedures were performed in 18 (81.8%), all satisfactorily, and with no need for conversion to open surgery. No morbidity or mortality occurred.

**Conclusion:** Laparoscopy is a safe and effective method for diagnosing and treating gynecologic emergencies.

**Key Words:** Acute abdomen, Gynecology, Gynecologic emergencies.

## INTRODUCTION

Since Semm<sup>1</sup> reported on the laparoscopic management of gynecologic disease in 1974, a great number of devices have been designed and have made possible the development of therapeutic laparoscopic procedures for gynecologic disorders.

Actually, the safety and effectiveness that laparoscopic procedures offer in gynecological surgeries make them the preferred methods for treating a great variety of gynecologic pathologies.<sup>2,3</sup>

Laparoscopic surgery for acute abdominal disease has been demonstrated to be highly effective, and management of gynecological emergencies utilizing laparoscopy is feasible in most cases.<sup>4,5</sup>

The objective of this work is to present an analysis of our laparoscopic experience with acute abdomen of gynecological origin in 22 consecutive cases.

## PATIENTS, MATERIALS, AND METHODS

From March 1997 to October 1998, 22 laparoscopic surgeries were performed in patients diagnosed with acute abdomen of gynecological origin. Ages varied between 19 and 45 years with an average of 34 years.

Inclusion criteria embraced all patients with a diagnosis of acute gynecological abdomen except patients with persistent hemodynamic instability in spite of resuscitation with intravenous crystalloid solutions and patients with a presumptive diagnosis of malignancy.

A detailed gynecological physical examination was performed on all patients; laboratory tests included a complete blood count, erythrocyte sedimentation rate, and urinalysis. In some patients, serum levels of beta human chorionic gonadotropin were determined.

A preoperative transvaginal ultrasound was obtained with a 3.5 MHz transducer in all patients. Cystic ovarian disease was the most frequent diagnosis noted.

Those patients taken for diagnostic laparoscopy underwent general anesthesia. A Foley catheter was inserted into the urinary bladder, and with the Hasson<sup>6</sup> technique,

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a 10-mm trocar was introduced via the umbilicus. The abdomen was inflated with CO<sub>2</sub>, and a zero degree laparoscope was utilized to inspect the abdominal cavity and pelvis.

The placement of the remaining trocars varied depending on the intraoperative findings. Once a diagnosis was established, the surgeon operated from the side opposite from where the pathology was located in the pelvic cavity. Five-mm trocars were placed in the hypogastrium and a 10-mm trocar was sited 2 cm inside the anterosuperior iliac spine (ASIS).

In some cases, a fourth 5-mm trocar was placed in the contralateral ASIS, from which instruments were manipulated by the surgical assistance. Once the diagnosis was established, surgical treatment utilizing laparoscopic technique was performed in the patients who required it. The surgical time, complications, and length of hospital stay were evaluated and pre- and intraoperative diagnoses were compared.

## RESULTS

Laparoscopic surgery confirmed the preoperative diagnosis in 10 patients (45.4%). It established a diagnosis in 5 cases (22.7%), and modified the diagnosis in 7 (31.8%). The diagnostic results, presented in **Table 1**, are very variable. Benign ovarian lesions were the most frequent-

ly encountered condition, being present in 40.9% of cases, followed by inflammatory and obstetric pathologies.

Therapeutic laparoscopic procedures were performed in 18 patients (81.8%), and the remaining procedures were for diagnostic purposes only. Partial oophorectomy, salpingectomy, myomectomy, abscess drainage, and pelvic adhesiolysis were performed as therapeutic procedures, all laparoscopically without conversion to open surgery.

Pre- and intraoperative diagnoses and therapeutic procedures performed in 22 patients are presented in **Table 1**. Operative time averaged 70 minutes and hospital stay was 1.6 days. No morbidity or mortality occurred.

## DISCUSSION

Laparoscopy is a very important auxiliary diagnostic method in the study of many gynecological pathologies.

In cases of acute abdomen, an early, accurate diagnosis is essential for a better evolution of the patient's progress. Laparoscopy has been shown to be very effective with a lower cost when compared with other modalities such as ultrasound, computed tomography scan, and magnetic resonance imaging.<sup>7,8</sup>

With laparoscopic methods, more than a quarter of the

**Table 1.**  
Pre- and Intraoperative Diagnoses and Therapeutic Procedures

Preoperative Diagnosis	Intraoperative Diagnosis	Procedure
Ovarian cyst tumors (9 cases)	Ovarian cyst tumor (5 cases) Leiomyioma (1 case) Hemorrhagic broken follicle (2 cases) Pelvic endometriosis and Adhesiolysis Syndrome (1 case)	Partial oophorectomy Myomectomy Partial oophorectomy Adhesiolysis
Broken ectopic pregnancy (4 cases)	Broken tubal pregnancy (3 cases) Hemorrhagic broken follicle (1 case)	Salpingectomy Partial oophorectomy
Nonspecific pelvic pain (5 cases)	Adhesiolysis pelvic syndrome Ovarian cyst tumor Broken tube ovarian abscess Broken tubal pregnancy Pelvic peritonitis	Adhesiolysis Partial oophorectomy Lavage and drainage Salpingectomy
Acute appendicitis (2 cases)	Pelvic peritonitis	Culture sample
Pelvic peritonitis	Pelvic peritonitis	Culture sample
Adhesion syndrome	Adhesiolysis syndrome	Adhesiolysis

preoperative diagnoses were modified; and unnecessary surgical therapeutic procedures were avoided in 18.1% of the cases. Therapeutic laparoscopic procedures for gynecological pathologies are accepted practice. The security and efficacy of laparoscopic procedures are comparable to that of conventional surgery with the additional advantages of a faster recuperation and a shorter hospital stay.<sup>2,3,5</sup> The laparoscopic approach allows for diagnostic exactitude equal to that of laparotomy and is safe and effective in most cases.<sup>4,5</sup>

Although our series is small, if we consult reports in the related literature and compare them with our results, the laparoscopic approach seems a reasonable alternative in most cases of acute abdomen, especially in those with probable gynecologic causes.<sup>4,9</sup>

Partial oophorectomy by laparoscopy is a procedure that we perform when the intraoperative diagnosis is that of an ovarian cyst. When this procedure is performed, the possibility of a malignant neoplasm lesion should be considered, and spilling of cyst content into the abdominal cavity should be avoided.<sup>10</sup> On the other hand, an intraoperative biopsy should always be performed on these specimens, and a frozen section report of the extracted piece should be obtained. Once the presence of malignancy has been discounted, superficial ovarian cysts can be electrocoagulated in order to obtain hemostasis. Later the ovarian cyst may be left open or its capsule sutured with reabsorbable material.

Ectopic tubal pregnancy can be treated with laparoscopic means. When the uterine tube is intact, a salpingostomy by laser CO<sub>2</sub> can be instituted, in an attempt to preserve fertility.<sup>11</sup> In cases where rupture and hemoperitoneum occur with tubal pregnancy, we recommend a laparoscopic abortion only if hemodynamic stability has been established. One must rely on high-pressure suction-irrigation equipment that permits breaking and evacuating the coagula. In these cases, salpingectomy can be performed by ligature of the mesosalpinx with titanium clips and occlusion of the tube stump by suture utilizing a preformed knot (Endoloop) or by the application of an endoscopic stapler and stapling of the mesosalpinx and uterine tube (EndoGIA).

In cases of abdominal pain of unknown cause and there is a suspicion of pelvic inflammatory disease, laparoscopic surgery has become a diagnostic tool that permits, not only confirmation of the process but also a classifi-

cation of the severity of the disease, and the probable time of hospitalization needed for patient recovery. Laparoscopic examination can also help in the evaluation of the future fertility status of the patient.<sup>12</sup>

The intraoperative management of these cases must be performed carefully, because tissues are usually very friable and hemorrhage can occur with the least contact of the surgical instruments. The pelvis has to be irrigated with sterile solutions and any abscesses must be drained.

In our series, no morbidity was associated with the laparoscopic procedures. This, however, does not mean that morbidity does not occur. In other works with a large cohort of patients,<sup>13</sup> it has been shown that intestinal injury followed by vascular injuries are the primary causes of morbidity from laparoscopic intervention.

The primary need with iatrogenic intestinal and vascular injuries is to establish an early diagnosis, that is, the lesion must be detected at the same moment it is produced. Early detection is necessary because in almost half of the cases of intestinal lesions, the injury was not detected during the laparoscopic procedure and these patients went on to develop potentially devastating peritonitis during the postoperative period.<sup>13</sup> Although the rate of occurrence of these injuries is low, 0.4% to 4.4% depending on the procedure,<sup>13</sup> they must always be taken into consideration and precautions taken to avoid them.

The results of our study (cited below) suggest diagnostic and therapeutic advantages that have made laparoscopy our preferred method of approach:

- A precise diagnosis was established that was different from the preoperative diagnosis in 54.5% of the cases.
- Unnecessary laparotomies were avoided in 18.1% of the patients.
- The laparoscopic procedures were carried out in an effective and safe manner, with the advantage of a very short hospital stay (1.6 days) and rapid recovery without postoperative morbidity. This is supported by other series<sup>2,3,5</sup> with larger cohorts and similar results. That is, compared with the results obtained in open surgery (laparotomy) laparoscopic procedures resulted in shorter hospital stays and shorter patient recovery time.
- The cosmetic advantages with 10- and 5-mm inci-

sions are obvious.

Considering that a laparoscopic approach in patients with acute abdomen allows a diagnostic accuracy equal to that of laparotomy<sup>4,5</sup> and considering the diagnostic and therapeutic advantages aforesaid, we believe that in patients with a gynecological acute abdomen the initial approach should be laparoscopic (except in situations that we consider as exclusion criteria). Resolution of gynecological acute abdomen should and must be attempted with laparoscopic procedures in most cases.

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